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shock absorber

device for reducing the effect of a sudden shock by the dissipation of the shock's energy. On an automobile, springs and shock absorbers are mounted between the wheels and the frame. When the wheels hit a hole or a raised spot on a road, the springs absorb the resultant shock by expanding and contracting. To prevent the springs from shaking the frame excessively, their motion is restrained by shock absorbers, which are also known by the more descriptive term dampers. The type of shock absorber found on automobiles is usually a hydraulic type that has a casing consisting of two tubes, one telescoping into the other. In order for a spring to expand and contract, it must pull apart and push together the ends of this shock absorber. But the ends offer so much resistance that the motion of the spring quickly dies out. The ends are connected to a piston in an oil-filled chamber in the shock absorber's inner tube. The piston can only move if it forces oil past it through valves. This arrangement creates a large resistance to any motion by the piston and consequently by the ends. On some automobiles a type of hydraulic suspension is used to function both as a spring and as a shock absorber. It comprises a sealed spherical container filled with equal volumes of hydraulic fluid and gas under pressure. The compression of the gas, which absorbs the shock, is supplied by the vehicle's engine. Shock absorbers are used on aircraft to ease the impact upon landing. Some machines are mounted on resilient materials composed, e.g., of cork or rubber. The materials act as shock absorbers, isolating the vibrations of the machine from the surrounding area.

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